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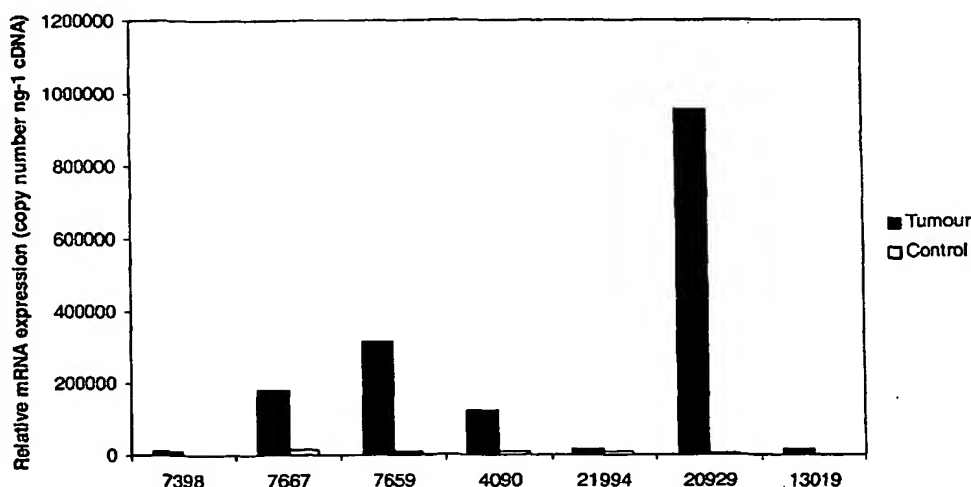
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[Continued on next page]

(54) Title: PROTEIN INVOLVED IN CANCER



(57) Abstract: The present invention relates to new uses of a protein (NKCC1) in the diagnosis, screening, treatment and prophylaxis of breast, lung and/or pancreatic cancer. The invention also provides compositions comprising the protein, including vaccines, antibodies that are immunospecific for the protein and agents which interact with or modulate the expression or activity of the protein or which modulate the expression of the nucleic acid which codes for the protein.

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— *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments*

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

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INTERNATIONAL SEARCH REPORT

International Application No
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A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 G01N33/574 G01N33/68 C07K14/47

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 G01N C07K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the International search (name of data base and, where practical, search terms used)

BIOSIS, EPO-Internal, MEDLINE

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	SHUMAKER HOLLI ET AL: "CFTR upregulates the expression of the basolateral Na ⁺ -K ⁺ -2Cl ⁻ cotransporter in cultured pancreatic duct cells" AMERICAN JOURNAL OF PHYSIOLOGY, vol. 277, no. 6 part 1, December 1999 (1999-12), pages C1100-C1110, XP001157084 ISSN: 0002-9513 abstract	1-9, 18-21
X	WO 00 55633 A (EOS BIOTECHNOLOGY INC) 21 September 2000 (2000-09-21) abstract; claims	1-9, 18-21

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

* Special categories of cited documents:

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the international filing date
- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the international filing date but later than the priority date claimed

- *T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
- *G* document member of the same patent family

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INTERNATIONAL SEARCH REPORT

International Application No
PCT/GB 03/01589

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	VIBAT C R ET AL: "Quantitation of Na ⁺ -K ⁺ -2Cl ⁻ cotransport splice variants in human tissues using kinetic polymerase chain reaction." ANALYTICAL BIOCHEMISTRY. UNITED STATES 15 NOV 2001, vol. 298, no. 2, 15 November 2001 (2001-11-15), pages 218-230, XP002268394 ISSN: 0003-2697 abstract; figures 5-7 ---	1-9, 18-21
A	MAJID ANEELA ET AL: "Expression of the Na ⁺ -K ⁺ -2Cl ⁻ cotransporter in alpha and beta cells isolated from the rat pancreas" PFLUEGERS ARCHIV EUROPEAN JOURNAL OF PHYSIOLOGY, vol. 442, no. 4, 3 May 2001 (2001-05-03) - July 2001 (2001-07), pages 570-576, XP009024842 ISSN: 0031-6768 abstract ---	1-9, 18-21
P,X	ADAM PAUL J ET AL: "Comprehensive proteomic analysis of breast cancer cell membranes reveals unique proteins with potential roles in clinical cancer." JOURNAL OF BIOLOGICAL CHEMISTRY, vol. 278, no. 8, 10 December 2002 (2002-12-10) - 21 February 2003 (2003-02-21), pages 6482-6489, XP002268395 ISSN: 0021-9258 abstract -----	1-9, 18-21

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

Continuation of Box I.2

Claims Nos.: 23-24

Present claims 23 and 24 relate to a product defined by reference to a desirable characteristic or property, namely "Interact with a polypeptide as defined in claim 1 (i)".

The claims cover all compounds having this characteristic or property, whereas the application provides support within the meaning of Article 6 PCT and/or disclosure within the meaning of Article 5 PCT for only a very limited number of such products. In the present case, the claims so lack support, and the application so lacks disclosure, that a meaningful search over the whole of the claimed scope is impossible. Independent of the above reasoning, the claims also lack clarity (Article 6 PCT). An attempt is made to define the product by reference to a result to be achieved. Again, this lack of clarity in the present case is such as to render a meaningful search over the whole of the claimed scope impossible. Consequently, the search has been carried out for those parts of the application which appear to be clear, supported and disclosed, namely those parts relating to the subject-matter of claims 1-9 and 18-22

The applicant's attention is drawn to the fact that claims, or parts of claims, relating to inventions in respect of which no international search report has been established need not be the subject of an international preliminary examination (Rule 66.1(e) PCT). The applicant is advised that the EPO policy when acting as an International Preliminary Examining Authority is normally not to carry out a preliminary examination on matter which has not been searched. This is the case irrespective of whether or not the claims are amended following receipt of the search report or during any Chapter II procedure.

INTERNATIONAL SEARCH REPORT

International application No.
PCT/GB 03/01589

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☒ Claims Nos.: 10-17, 23-24, 22, 25, 26
because they relate to subject matter not required to be searched by this Authority, namely:
Claims 10-17, 22, 25 and 26: Rule 39.1(iv) PCT - Method for treatment of the human or animal body by therapy
2. ☒ Claims Nos.: 23-24
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
see FURTHER INFORMATION sheet PCT/ISA/210
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this International application, as follows:

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/GB 03/01589

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
WO 0055633	A	21-09-2000	US 6316272 B1	13-11-2001
			US 6294343 B1	25-09-2001
			AU 3755300 A	04-10-2000
			CA 2369319 A1	21-09-2000
			EP 1163524 A2	19-12-2001
			WO 0055633 A2	21-09-2000
			US 2003198951 A1	23-10-2003
			US 2003118509 A1	26-06-2003
			US 6566502 B1	20-05-2003
			US 6455668 B1	24-09-2002